CHICOPEE CITY COUNCIL

ORDINANCE COMMITTEE



MEMBERS

James Tillotson, Chairman Fred Krampits, Vice-Chairman Frank Laflamme Timothy McLellan Jerry Roy

APPROVED

MINUTES August 23, 2016

The following are the minutes of a public hearing held Tuesday, August 23, 2016 at 6:30 PM in the City Council Chambers, Fourth Floor, City Hall Annex, 274 Front Street, Chicopee, MA 01013.

Members Present:

Tillotson, Krampits, Laflamme, McLellan, Roy

Also Present:

Dan Garvey (Asst. City Solicitor), Councilor Lamontagne, Councilor Labrie, Councilor Zaskey, Councilor Zygarowski, Councilor Courchesne (arrived 6:37), Lisa

Sanders (Health Director)

The meeting was called to order at 6:30 PM.

In compliance with the open meeting laws the Chairman asked if anyone in the audience was recording the meeting. Hearing none the meeting continued.

ITEM #1 & ITEM #2

ORDERED THAT the City Council look into an ordinance eliminating all plastic bags in the City of Chicopee.

ORDERED THAT the City Council look into an ordinance eliminating all Styrofoam in the City of Chicopee.

The Chairman opened the meeting to Public Input

Kathleen Shea, 876 Chicopee Street, stated that the residents of the city cannot take much more. She utilizes the plastic bags for everything. If they are eliminated from the grocery stores the price of groceries will increase. She is opposed to the ban.

Cynthia Starzyk, 305 Beauchamp Terrace, stated that she is opposed to the ban. She utilizes the plastic bags to pick up dog waste when she walks her dog. If plastic bags are banned then she is concerned that the city will be loaded with dog waste because people will just leave it and not pick up.

Larry Katz, 307 Grattan Street, Arnold's Meats, stated that plastic bags are stronger than paper bags. He further stated that Styrofoam trays that are used by his store are the most efficient for his meat business.

Jaimin Patel, 398 Front Street, Fruit Fair, stated that he opposes the ban. Paper bags are very expensive and it will increase the price of groceries onto his customers if he if forced to buy paper bags. Styrofoam is essential to his meat department.

Don Szczebak, 174 Meetinghouse Road, stated that he is in favor of the ban. Cambridge and Northampton have adopted such a ban. Coffee can be served in paper cups.

Susan Morando McAndrew, 225 Wheatland Avenue, stated that she is in favor of looking into the ban. The closure of the landfill in the city is a huge concern which will probably result in a trash pick-up fee. She stated that it is an environmental issue. This issue is paramount to young adults in the community.

Roland Archambault, 42 High Street, stated that he lives in an apartment and his rubbish is picked up by a private contractor. There is no recycling occurring in his apartment complex. He asked why the City voted to take in trash from other communities into the Chicopee landfill.

Councilor Tillotson stated that its a misconception. He stated that the City does not own the landfill. It is owned by a private party and the City has no say who can dump at the landfill.

Mr. Archambault further stated that the plastic bag manufacturers should produce biodegradable plastic bags.

Karen Hansmann, 27 Walton Street, stated that the city would be remiss not to look into the issue. She further stated that in the future she feels this matter will be regulated by the state.

Bill Lempke, 4 Gonet Street, stated that he opposes the ban. He stated that plastic bags are not going to fix the amount of garbage dumped in the landfill. He further stated that BayState Medical Center has an incinerator and they burn their trash.

Councilor Tillotson stated that the city was told by the state that there are no more permits available to burn trash in the state. There are only a couple of cities in the state that have permits to burn trash.

Ben Curry, Chicopee Chamber of Commerce, stated that the Chambers has no official statement of the bans. However, he stated that he did look into the matter and some studies that he found show an increase in water consumption and an increase in dumping in the landfill where plastic bags were banned.

Pat Bergeron, 25 Calvin Street, stated that she likes plastic bags but would like to see biodegradable bags utilized.

Maria Cuerda, 90 McKinstry Avenue, Apt. 201, stated that she would like the issues studied further.

Dan Bergeron, 25 Calvin Street, stated he opposes plastic bags and Styrofoam use.

Don Szczebak, 174 Meetinghouse Road, stated that the city should tax those utilizing the Chicopee landfill.

Councilor Tillotson stated that he has received written testimony from the Retailers Association stating that they are not ready for the conversion.

Hearing no one else wanting to speak in the audience, the public input portion of the meeting was closed.

Councilor Roy stated that he would like the issue studied further.

Councilor Krampits stated that he has received calls from residents opposing the ban and wanting to see better recycling.

Councilor Laflamme stated that he is in favor of studying the issue further.

Lisa Sanders stated that she is concerned about removing Styrofoam from meat departments. This could have the potential to cause bacteria issues.

Councilor McLellan stated that we only have one earth and the city should look into the bans for the next generation.

Councilor Lamontagne stated that it takes millions of years for Styrofoam to degrade in the landfill. Biodegradable bags degrade in about 200 days. He suggested that the city look into phasing out Styrofoam but plastic bags should be banned immediately and replaced with biodegradable bags. He urged the Council not to delay the issue.

Councilor Tillotson stated that 25 towns/cities in the Commonwealth have plastic bag bans in place.

Motion made by Councilor Laflamme and second by Councilor McLellan to recommend the proposed ordinance on plastic bags be further studied.

Motion made by Councilor Laflamme and second by Councilor McLellan to recommend the proposed ordinance on banning Styrofoam be further studied.

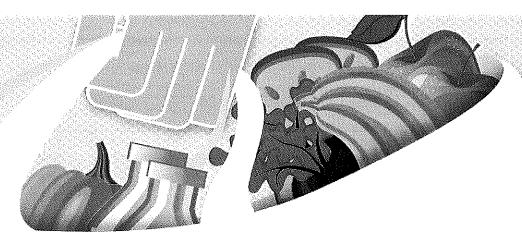
Committee vote 5-0 favorable.

ITEM #3

Minutes – June 28, 2016. Motion made to approve. Motion passed.

Meeting adjourned at 7:13 PM.





the truth Plastic

Despite the facts, plastic bags have gotten a bad rap. Here's the truth about your plastic bags and why they are the right choice for the environment, your wallet and your community.

Litter and Composition

Resolution de la constitución de (0) 0) 0) 4 1 (0) 10 E(0) (3) Carre and Was erdere<mark>tringeringer</mark> Orași (deligica) or

PLASTIC BAGS

Plastic bags are 100% reusable and recyclable. Recycle your plastic bags in the bins outside your local grocery store.

That's why banning bage won't reduce everall litter.

the truth... Plastic Bags

Reusing and Recycling



Plastic bags are
not "single use". More
than 9 out of 10 of Americans
reuse their plastic bags at least
once, for everything from
storage to waste disposal
to packing material.

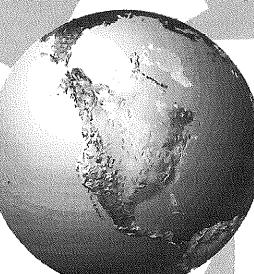
1:3:3%

Plastic bags are 100 percent recyclable and reusable.



In 2011, an estimated 1 billion pounds of post-consumer plastic bags and films were collected for recycling in the United States.

The same report showed that plastic bag and film recovery has increased by 55 percent since 2005.





There are over 30,000 locations for plastic bag recycling across the country!



Recycled plastic bags are used to make new plastic bags and products, such as backyard decks, playground equipment, plumbing pipes and fencing.



91 to 93 percent of the U.S. population has access to nearby plastic bag recycling.



the truth... Plastic Bags

The Real Green Bag

Plastic grocery bags require 70% less energy to manufacture than paper bags. The production of plastic bags consumes less than 4% of the water needed to make paper bags.

It takes seven trucks to deliver the same number of paper bags that it takes to transport plastic bags in only one truck.

9.3x

Reusable and paper bags take up more space than a plastic bag in a landfill. Paper bags take up 9.3x as much space as a plastic bag.



the truth...
Plastic
Bags

The Not So Green Reusable Bags

131x

A reusable cotton bag must be used no less than 131 times before having a "greener" environmental impact than a common plastic grocery bag!



MORE

Many reusable bags are made from heavier and thicker plastic or cotton which takes up more energy to produce. Reusable bags aren't recyclable.

The U.S. ITC, report

The U.S. ITC reports
that hundreds of
millions of reusable
bags are imported to
the United States each
year. It takes more
energy to transport a
reusable bag from
overseas than it does to
manufacture and transport
an American-made
plastic bag.

TRASHED

Reusable bag giveaways are environmentally costly when unwanted bags end up inthe dumpster, often after only one use.

Bag Bans Hurt Businesses

Solana Beach business saw implementation of the ban. declines in business. One a 25 percent decline in business following the Some stores have seen

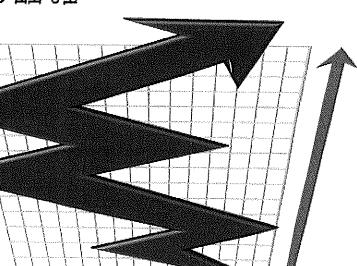
\$10.000 P

told a Portland newspaper A Grocery Outlet Store that they have lost over \$10,000 to shoplifters using reusable bags.

One store found that 300 customers since the bag plastic grocery baskets ban was announced. nave been stolen by



storeowners surveyed seeing their costs for nearly 40 percent of 40 and 200 percent. ban on plastic bags, Following Seattle's post-ban reported increase between carryout bags



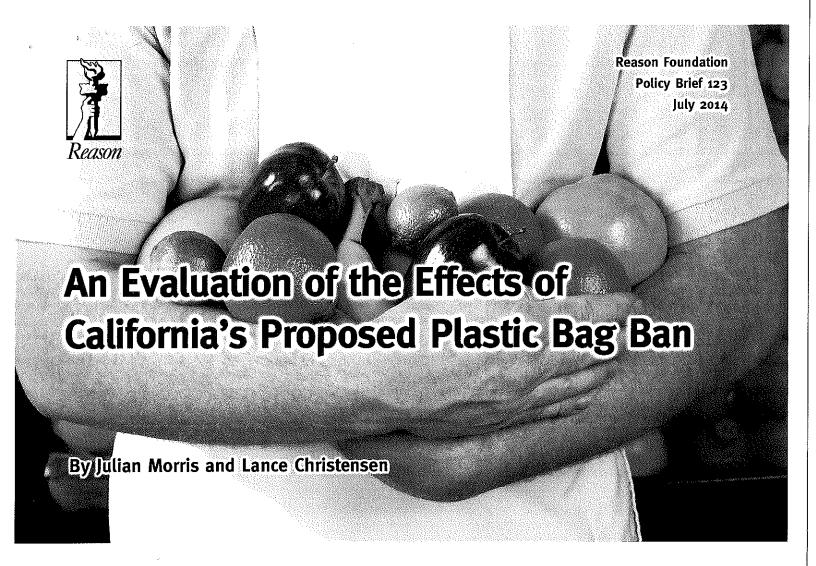
Sources

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Boustead Consulting & Associates: "Life Cycle Assessment for Three Types of Greeny Bags—Recyclable Plastic Compostable. Brodegradable Plastic and Recycled, Recyclable Paper, 2007.

http://www.rammergidocuments/8/Aprily202008gdf

Tariff and trade data from the U.S. Department of Commerce and the U.S. International Trade Commission.



Summary

Many cities and counties in California have passed ordinances banning the distribution of high density polyethylene (HDPE) plastic grocery bags and mandating fees for paper bags. State Senator Alex Padilla recently introduced a bill (SB 270) that would impose similar requirements statewide.

The premise of these laws is to benefit the environment and reduce municipal costs. In practice, the opposite is more likely to be the case.

While the impact of such legislation depends on the way consumers respond, the available evidence suggests that it will do nothing to protect the environment; quite the opposite, it will waste resources and cost Californian consumers billions of dollars. Specifically, such legislation will:

 Have practically no impact on the amount of litter generated (moreover, while banning plastic bags at small retailers might reduce plastic bag litter by 0.5%, banning the distribution of HDPE plastic bags by large retailers is unlikely to have any impact even on the amount of HDPE plastic bag litter produced.)

- Have no discernible impact on the amount of plastic in the ocean or on the number of marine animals harmed by debris;
- Increase the use of oil and other non-renewable energy resources, including coal and natural gas;
- Result in five-fold or greater increase in the shopping bag-related use of water;
- Make little or no difference to the costs of municipal waste management;
- Impose enormous costs on California's consumers, likely over \$1 billion in both direct and indirect costs (such as time spent washing reusable bags).

Introduction

Plastic shopping bags made from high density polyethylene (HDPE) first came into widespread use in 1982. By 1996, 80% of all grocery bags used in the United States were made from HDPE. Concerned at the possible impact of such widespread use, environmental pressure groups have sought to ban these plastic bags.

At the time of writing, 192 municipalities in 16 states and the District of Columbia have enacted bans on HDPE plastic bags. California is the leading state for bag bans, with ordinances in nearly 100 municipalities, including San Francisco and Los Angeles.

In addition to banning plastic bags, most of the ordinances in California also require retailers to collect a fee for paper bags. In most cases, this fee is set at \$0.10, although some municipalities have higher fees (such as \$0.15) and many are scheduled to increase fees (usually to \$0.25). Most of these bag ordinances are similarly constructed.

In February 2014, California State Senators Padilla, De León and Lara introduced a bill (SB 270) that would, with some exceptions, ban the distribution of HDPE plastic bags by all stores in the state, beginning July 1, 2015 with large stores and then, one year later, extending to small stores. In that respect, the bill is similar to the many municipal ordinances throughout the state. The bill also

includes a requirement that stores charge a minimum of 10 cents for recycled paper bags, compostable bags and reusable bags.

The implicit assumption underlying SB 270—and the dozens of ordinances already passed in California restricting use of grocery bags—is that plastic bags are bad for the environment in various ways. Proponents of restrictions typically make one or more of the following claims:

- 1) Restrictions on HDPE bags would reduce litter and protect the marine environment;
- 2) Restrictions on HDPE bags would reduce our consumption of resources;
- 3) Restrictions on HDPE bags would reduce waste and save taxpayers' money;
- 4) Restrictions on HDPE bags would reduce our emissions of greenhouse

This brief assesses the veracity of those claims and then considers the wider impact of SB 270 and similar municipal restrictions.

The Impact of Shopping Bag Regulations on Litter and the Marine Environment

Contrary to some claims made by advocates of plastic bag bans, plastic bags constitute a minuscule proportion of all litter. A 2013 report by Steven Stein, the leading authority on litter in the country, shows that HDPE plastic retail bags represent only 0.6% of visible litter across the United States, while in the two Californian cities studied, San Jose and San Francisco, they represented 0.4% and 0.6% (before the introduction of restrictions on the use of such bags in those cities). So, even if all plastic bags were banned, the impact on overall litter would be relatively insignificant.

It is also worth looking at what has happened in practice as a result of plastic bag bans. Among the best data we have comes from San Francisco, which in October 2007 implemented a ban on the distribution of HDPE plastic bags by retail establishments (grocery stores and pharmacies) with over \$2 million in annual sales. Audits of San Francisco's litter were conducted in 2007, 2008 and 2009 and these showed that the amount of litter from plastic retail bags did not decline after the ban; as Table 1 shows, it actually increased. This suggests that

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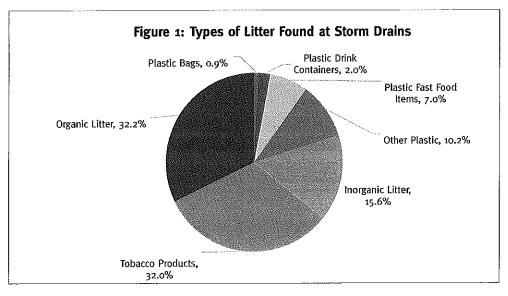
almost none of the plastic bag litter came from bags distributed by larger retailers, so restricting the distribution of bags by such retailers has no benefit in terms of litter reduction.

Table 1: Litter from Plastic and Paper Retail Bags in San Francisco			
Year	2007	2008	2009
Plastic retail bags	0.6%	0.6%	1.5%
Paper retail bags	0.4%	0.4%	0.5%

Source: The City of San Francisco Streets Litter Re-Audit, 2009

The Impact of Plastic Bag Litter: (1) Clogging of Storm Drains

Proponents of plastic bag bans claim the bags clog storm drains, but a comprehensive 2009 survey by Keep America Beautiful found that plastic bags of all kinds represented just less than 1% of visible litter items in storm drains.² By contrast, as Figure 1 shows, plastic drink containers represented about 2% and other plastic items represented over 10%.³ Clearly, banning plastic bags would do little to reduce the problem of clogged storm drains, so attention should instead focus on ways to reduce the production of litter of all kinds—or mitigate its effects.



Source: Keep America Beautiful National Visible Litter Survey and Litter Cost Study, 2009.

The Impact of Plastic Bag Litter: (2) Damage to Marine Ecosystems

Proponents of bag bans also frequently claim that large numbers of plastic bags find their way into the oceans, resulting in a giant "garbage patch" that is causing the death of millions of birds and marine mammals. But the National Oceanic and Atmospheric Administration (NOAA) points out that there is no scientific evidence to support even the first claim (that large amounts of marine debris originate on land), noting that "We know relatively little about what is lying on the ocean floor or suspended in the water column. Because of this we truly can't say what the land- and ocean-based percentages are with any certainty or accuracy." Nonetheless, journalists have often repeated these unsupported claims. For example, in 2009 Oprah Winfrey opined:

Scientists believe the world's largest garbage dump isn't on land, it's in the ocean. Estimated to be twice the size of Texas, the Great Pacific Garbage Patch stretches from the coast of California all the way to Japan. In some places the manmade debris is ninety-feet deep...In some parts of the ocean there's already six times more plastic than plankton...The monumental amount of plastic trash has created an ecological disaster that has cost the lives of millions of seabirds and marine mammals...This is the most shocking thing I've seen.⁵

The only shocking thing about Ms. Winfrey's rant is the absence of scientific evidence in support of her claims. Again, according to the NOAA: "The name 'garbage patch' is a misnomer. There is no island of trash forming in the middle of the ocean, nor a blanket of trash that can be seen with satellite or aerial photographs." Scientists who have studied the problem have found small pieces of plastic floating in the North Pacific and estimate that such flotsam has increased substantially over the course of the past 40 years. But that is hardly surprising, since the amount of plastic used throughout the world has increased similarly in that time. Moreover, there is simply no evidence that debris from plastic bags is a significant threat to marine animals. As David Santillo, a senior biologist with Greenpeace, told a reporter at *The Times of London:*

It's very unlikely that many animals are killed by plastic bags. The evidence shows just the opposite. We are not going to solve the problem of waste by focusing on plastic bags.... With larger mammals it's fishing gear that's the big problem. On a global basis plastic bags aren't an issue.⁷

The claim that plastic debris has been killing hundreds of thousands of marine mammals and millions of birds seems to be based on the misinterpretation of a Canadian study assessing the unintended impact of fishing gear.⁸ David Laist, an expert on entanglement and since 1979 an analyst for the Marine Mammal Commission told *The Times* that:

In reality plastic bags don't figure in entanglement... The main culprits are fishing gear, ropes, lines and strapping bands. Most mammals are too big to get caught up in a plastic bag.... the impact of bags on whales, dolphins, porpoises and seals ranges from nil for most species to very minor for perhaps a few species. For birds, plastic bags are not a problem either. 9

So, to sum up, the available evidence shows that:

- Some plastic debris—including from plastic bags—certainly finds its way into the oceans, but there is no "garbage patch" in the North Pacific (or anywhere else);
- The amount of plastic in the oceans is larger than it was 40 years ago but remains relatively insignificant even where it is most concentrated; and
- There is no evidence that plastic bags are killing significant numbers of birds, whales, dolphins, porpoises or other marine animals.

By contrast, discarded or abandoned fishing gear does seem to be a serious threat to marine animals. In addition to the hundreds of millions of fish that are caught each year, such gear entraps hundreds of thousands of other animals and birds. Unfortunately, the obsessive focus of campaigns to ban plastic bags has distracted attention from this real problem.

The Impact of Plastic Bag Regulations on the Generation of Waste and Municipal Costs

Data from the U.S. Environmental Protection Agency show that in 2010 (the most recent year for which data are available), the nation discarded 690,000 tons of HDPE bags. Of those, approximately 30,000 tons were recovered (i.e., recycled), meaning that a total of 660,000 tons were finally discarded—mostly into landfill.¹⁰

The same year, the nation produced a total of just less than 250 million tons of municipal solid waste, of which approximately 85 million tons were recovered and 165 million tons were discarded. So, HDPE bags constituted approximately

0.28% by weight of all waste generated and 0.4% by weight of all waste discarded. 11

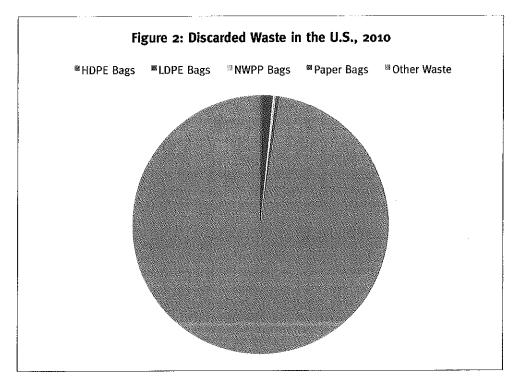
By comparison, in the same year, the nation discarded almost exactly the same amount of reusable polypropylene bags (680,000 tons), of which none were recovered. So, polypropylene actually constituted a slightly higher proportion of all bags going to landfills (at 0.41%). 12

The nation also threw away approximately 2.38 million tons of LDPE bags, of which about 420,000 tons were recycled and 1.96 million tons discarded. As such, LDPE bags constituted about 1% of the nation's discarded waste—more than HDPE and NWPP bags combined.

Meanwhile, also in the same year, the nation discarded just over one million tons of paper bags and sacks, of which approximately 25% was estimated to have been recovered and 75%, or 750,000 tons, discarded. ¹³ Not only is that a larger weight, but because paper is less dense than plastic, it takes up considerably more space in landfills.

As these data show—and as can be seen in Figure 2—HDPE plastic bags do not constitute a significant proportion of the nation's waste. Since all alternative bags—including LDPE, NWPP and paper—are significantly heavier than HDPE bags, and since consumers would likely switch to some combination of these alternatives, it is quite possible that eliminating HDPE bags would result in an increase in the amount of waste discarded.

Moreover, as noted above, the amount of non-renewable energy consumed by using only HDPE bags would be about half the amount consumed for an average household using NWPP, LDPE or paper bags. Meanwhile the amount of water consumed during the life-cycle of an HDPE bag is one-fifth that of the next closest bag (paper). So, banning HDPE bags results in a significant increase in waste of energy and water.

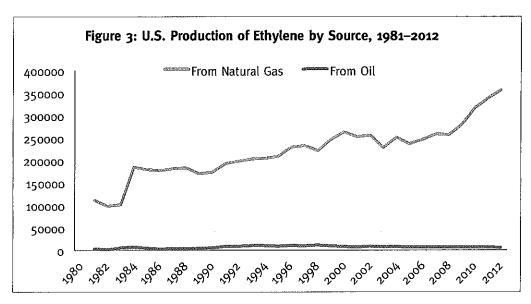


Source: U.S. Environmental Protection Agency: Municipal Solid Waste Generation, Recycling, and Disposal in the United States Tables and Figures for 2010

The Impact of Plastic Bag Regulations on **Consumption of Resources**

It is commonly assumed that plastic bags are made from oil and that banning plastic bags will reduce oil consumption. Ross Mirkarimi, a member of San Francisco City Council and chief protagonist of the city's bag ban, reportedly asserted in 2007, "You're talking about twelve million barrels of oil that are used nationally to produce 30 billion plastic bags in the United States...."14

In fact, nearly all HDPE bags are produced from natural gas, not oil. Indeed, between 1981 and 2012, on average only 3.2% of ethylene—the feedstock for polyethylene—was made from oil, as shown in Figure 3. Ironically, one of the primary substitutes for HDPE bags, non-woven polypropylene (NWPP) bags is derived from oil. 15 So, restricting the use of HDPE bags would likely increase oil consumption.



Source: U.S. Energy Information Administration: 2012. U.S. Refinery and Blender Net Production of Ethane-Ethylene.

Non-Renewable Energy Resources

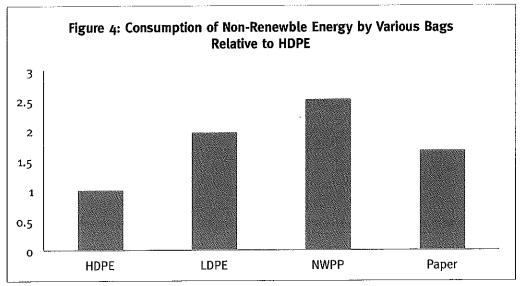
The wider question of whether restrictions on the use of HDPE bags would reduce consumption of resources has been addressed by various life-cycle analyses (LCAs). These LCAs seek to account for the environmental impact of a product throughout its life-cycle, from cradle to grave. A recent Reason Foundation study analyzed the main LCAs of grocery bags that have been undertaken and used those to assess the impact of HDPE bags relative to other bags on various measures, including use of non-renewable energy resources (i.e., coal, oil and natural gas). 16

A main alternative type of bag that would be permitted under SB 270 is one made from low density polyethylene (LDPE). In principle, the LCAs show that if LDPE bags were reused a sufficient number of times, they might on net consume fewer non-renewable energy resources than HDPE bags. But how many times? Making the reasonable assumption that about 60% of HDPE bags are reused in ways that avoid the use of other bags, ¹⁷ we calculated that an LDPE bag would have to be reused at least six times in order to achieve the same or lower consumption of non-renewable energy resources. 18

While a recent survey found that most people who reuse LDPE bags for shopping say they use the bag five or more times, many people reuse the bags for other purposes. 19 The survey designers estimate that, in practice, LDPE bags are on average reused 3.1 times.²⁰ That is about half the number of uses necessary to achieve parity with an HDPE bag.

A similar analysis can be applied to non-woven polypropylene (NWPP) bags, another alternative bag that has been promoted heavily by opponents of HDPE bags. Assuming again that 60% of HDPE bags are on average reused, a NWPP bag would have to be used a minimum of 37 times in order to consume the same or less energy than the HDPE bags it replaces.²¹ In practice, United States consumers use NWPP bags an average of 14.6 times.²² That is less than half the number of uses that would be required to achieve parity with an HDPE bag.

Finally, paper bags use about twice the energy of an HDPE bag over the course of their life (assuming again that 60% of HDPE bags are reused).



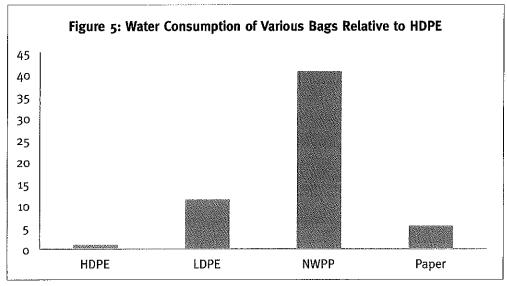
Source: authors' calculations

Figure 4 shows the relative amounts of non-renewable energy that would be consumed as a result of an average consumer exclusively using each of the bag types. It is clear that using HDPE bags exclusively would result in the consumption of far *fewer* non-renewable energy resources than if one of the alternative bag types were used. Any policy restricting the use of HDPE plastic bags would thus increase the total amount of non-renewable energy associated with shopping bag use. If HDPE plastic bags are banned statewide under SB 270, it is estimated that non-renewable energy use relating to shopping bags in California would rise by 50% or more.

Water

Water is another important resource that is consumed during production, transportation, use and disposal of shopping bags. The use of water is of particular significance in California, given the aridity of the state, frequency of droughts and current restrictions on water use. Unfortunately, only two of the full LCAs calculated water consumption and neither included estimates for NWPP bags. Moreover, although the California Department of Public Health advises consumers to wash their reusable bags frequently in order to avoid contamination, neither LCA included water consumed during the washing of reusable bags. Fortunately, however, we were able to use other estimates to infer water usage for NWPP bags and to estimate usage for washing of both NWPP and LDPE bags.²³

Making the same assumptions as above regarding the number of reuses of each bag type, we calculated the relative amounts of water consumed by each bag type. 24 These are given in Figure 5. The conclusion is clear: HDPE bags use far less water than other bag types. In our estimates, compared with using only HDPE bags, using only paper bags would result in the use of at least five times as much water, while using only LDPE bags would require about 10 times as much water, and using only NWPP would require about 40 times as much water.



Source: authors' calculations

Since SB 270 would ban the use of HDPE bags, it would result in a dramatic increase in shopping-bag-related water consumption, likely increasing it fivefold or more as consumers switch to a combination of paper, LDPE and NWPP bags.

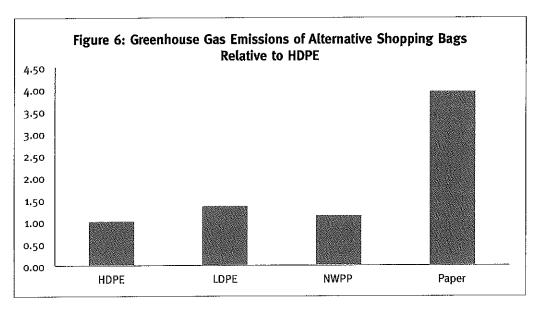
The Impact of Plastic Bag Regulations on **Greenhouse Gas Emissions**

Anthropogenic global warming, aka "climate change," has become the dominant concern for most national environmental groups. So it is no surprise that stopping global warming is touted as one of the main justifications for banning plastic bags. But would banning plastic bags actually do anything to reduce greenhouse gases (GHG) and/or prevent global warming?

The various LCAs came to slightly different conclusions regarding the emissions of GHGs by various bags. So, in order to err on the side of caution, for each type of bag we took the estimate with the lowest life-cycle GHG emissions relative to those produced by an HDPE bag of equivalent volume. We then estimated the relative emissions expected based on the assumptions we used for the assessment of non-renewable energy use (i.e., NWPP bags used 14.6 times, LDPE bags used 3.1 times, HDPE bags use 1.6 times, paper bags used once).

The outcome of this analysis is shown in Figure 6. From this, it is immediately apparent that paper bags are responsible for considerably higher levels of GHG emissions. However, both reusable bags-LDPE and NWPP-result in similar emissions of GHGs.

But remember that the LCAs did not take into account washing of the reusable bags. If people use warm water to hand wash their bags, or if they use a washing machine for their NWPP bags, then the GHG emissions would increase significantly.



Source: authors' estimates

Given that SB 270 is likely to result in some people switching from plastic to paper, the net effect is likely to be an increase in GHG emissions. So, once again, the claims made by environmental groups appear to lack empirical support and in fact are contradicted by the evidence.

Other Effects of Banning Plastic Bags

Banning plastic bags and imposing mandatory fees on paper bags would likely have numerous unintended but foreseeable consequences, ranging from health effects on consumers to security risks for retailers. Some of these likely consequences follow.

Health Effects for Consumers

In 2010, nine members of a soccer team in Oregon were infected with norovirus—a severe, but usually non-fatal stomach virus—as a result of eating food from a reusable bag that had become contaminated with the virus.²⁵ Numerous other instances of food-borne illnesses have been traced to reusable bags contaminated with bacteria and other pathogens.²⁶ Researchers at the Universities of Arizona and Loma Linda, California found that half the bags they surveyed were contaminated with coliform bacteria and noted that users

indicated they rarely washed their bags.²⁷ A recent survey found that only 16% of shoppers cleaned their reusable NWPP bags "once a week or more."28

To address these risks, the California Department of Public Health recently issued the following advice concerning the use of reusable shopping bags:

At home:

- Reusable grocery bags should be machine or hand-washed frequently! Dry the bags in a clothes dryer or allow them to air dry.
- After putting groceries away, clean the areas where the bags were placed while un-bagging your groceries, especially the kitchen counter and the kitchen table where food items may later be prepared or served.
- If food residues from any food products have leaked into the bag, make sure to wash and dry the bag thoroughly before reuse.
- If reusable grocery bags have been used to transport non-food items, such as detergents, household cleaners, and other chemicals, wash and dry the bags before using them to transport food items. Alternatively, you may wish to use bags of one color for food items and bags of a different color for non-food items.
- Store grocery bags away from sources of contamination, such as pets, children, and chemicals. Storing reusable grocery bags in the trunk of cars is not recommended. During the warmer months, the increased temperatures can promote the growth of bacteria that may be present on the bags.

At the store:

- Place reusable bags on the bottom shelf of the grocery cart (below the cart basket where food products are placed).
- When selecting packages of meat, poultry, or fish, consider putting the packages in clear plastic bags (often available in the meat and produce sections) to prevent leaking juices from contaminating other food items and the reusable grocery bags.²⁹

Additional Costs for Consumers

If every user of reusable bags followed these instructions, the risk of food-borne disease being transmitted by such bags would likely be eliminated, or at least

drastically reduced. However, if even a small proportion of users fail to undertake such measures, bacteria can be spread from dirty bags to clean bags, as well as directly onto food, via the checker's hands, shopping carts and checkout counters.

But undertaking these actions entails: expenditure of time and resources on cleaning; additional space at home for storing the bags; the use of additional lighter weight (LDPE) plastic bags for meat and produce, and the purchase of large numbers of reusable bags (the number will likely be larger if the bags are washed and dried by machine, due to the damage inflicted by such machines). By making a few reasonable assumptions, these costs can be quantified.

In California, in 2012, there were 12.4 million households, with median household income of approximately \$61,400. If each household spends an additional five minutes per week washing, drying and organizing its reusable bags, the average "opportunity cost" (i.e., the value of time spent undertaking these activities) is approximately \$2.56 per week per household.³⁰ If the entire state were to switch to reusable bags only, the opportunity cost would be approximately \$1.66 billion per year.

Of course, it is possible that consumers in general and lower-income consumers in particular might increase their use of reusable bags in response to plastic bag bans without increasing the frequency with which they wash the bags. That would then likely result in a significant increase in food-borne diseases. If that were to happen, bag bans could be considered highly regressive.

Shoppers in the U.S. on average make around two visits to a grocery store each week. A recent survey by Edelman Berland suggests that each household typically uses each NWPP bag 14.6 times and each LDPE bag 3.1 times.³¹ Assuming shoppers use three NWPP bags and three LDPE bags per grocery store visit, that would mean each household on average uses about 21 NWPP bags per year and about 100 LDPE bags per year. 32 If a NWPP bag costs \$1.15 (the number used by the San Francisco controller) and a LDPE bag costs \$0.25 (the bulk price on LDPE bags with the characteristics required by SB 270 is about \$0.21,³³ so this allows only a slim markup by retailers), the cost per household will be \$50 per year. That adds approximately \$613 million per year.

In addition, the main purpose for which households currently reuse HDPE bags is as garbage bin liners and for the disposal of animal litter and waste. Survey data suggest that about half of all NWPP bags are used for those purposes.34 Where plastic bags have been banned, consumers have instead bought

alternative plastic bags (typically, small LDPE bags) for those purposes. It seems reasonable to assume that households would on average use about five such bags per week (i.e. about one-third the number of HDPE bags consumed by an average household) at a cost of about \$12 per household per year. 35 That would add approximately \$78 million statewide.

So, counting only the direct cost of purchasing additional bags and the opportunity cost of consumers' time (that is, not including the cost of water, electricity and detergent used in cleaning the bags), the cost to California's consumers of switching to reusable bags would be approximately \$2.35 billion.

The experience of San Francisco suggests that many (perhaps most) consumers are unlikely to switch to reusable bags. If shoppers realize the likely cost (especially including the opportunity cost necessary to avoid contamination) associated with reusable bags, the proportion using such bags would likely remain small. At 10 cents per paper bag, an average week's shop might cost \$1.50 in bags for an average household.³⁶ That's a saving of about \$2 per week compared to the total cost of reusable bags.

Even shoppers who intend to use reusable bags are likely often to end up using other types of bags, and may buy more from the store: In a recent survey by Edelman Berland, 40% of shoppers forgot their reusable bags.³⁷

But averages often hide important details. Plastic bag bans likely have a disproportionate impact on lower income households. For such households, the cost of paper bags would represent a relatively larger proportion of income. At the same time, the opportunity cost of managing reusable bags would be lower and the cost of forgetting reusable bags higher, so they might be more likely to reuse such bags.

For a household of four people with one wage earner on minimum wage, the opportunity cost of reusable bags might be as low as \$0.25 per week,38 though the direct costs of purchasing and washing renewable bags would remain about \$1 per week. This would make the net costs of reusing bags for such a household about the same as the cost of purchasing 12 paper bags at \$0.10 per bag. In addition, such a household would likely have to purchase additional garbage bin liners at a cost of perhaps \$0.25 per week.

By contrast, middle- and high-income households would be less likely to use reusable bags, especially once they realize the measures necessary to prevent contamination. However, some higher-income households may elect to use reusable bags in order to signal their environmental credentials. Given the high

opportunity costs of manually washing and drying bags, such households are likely to use cloth bags that can be machine washed. That might, ironically, be among the worst environmental outcomes, especially in California, due to the large amounts of water used during washing.

Effects on Retailers

Under SB 270, retailers would no longer distribute HDPE plastic bags to consumers, no longer incurring a nominal expense for shopper convenience and practical use, "free" to the consumer. Since the free distribution of such bags represents a cost to retailers, this cost would be reduced. In addition, the introduction of mandatory fees on paper, compostable and reusable bags will increase retailers' revenue, both through sales of these bag types and through increased sales of garbage can liners.

However, this would likely be offset in part by the need to change bagging processes and systems and also likely increases in the amount of time taken to bag items. Moreover, for many retailers, reusable bags represent a security risk, a theft risk and a liability risk. The security risk arises from the potential for reusable bags to be used to hide weapons. The theft risk arises from the potential to use such bags to hide stolen goods. These risks mean stores will likely have to increase expenditures on security and theft prevention.³⁹ The liability risk arises from the possibility that inadequately washed bags will contaminate food purchased by other customers, who then sue the store. (Another potential liability issue pertains to the risk of injury to customers and store workers from lifting heavy, fully laden reusable bags. 40)

Conclusions

Proponents of SB 270 and of California's various shopping bag ordinances claim that banning HDPE plastic bags and charging for paper bags will result in significant environmental benefits. This brief shows that, to the contrary, banning plastic bags is likely to result in increased use of non-renewable energy resources, increased emissions of greenhouse gases, and increased use of water. At the same time, they are unlikely to reduce litter, litter collection costs or waste management costs significantly. And they would have no discernible impact on marine animals.

The various shopping bag ordinances already enacted impose considerable costs on consumers, forcing them either to pay for paper bags or to spend precious time washing, drying and managing reusable bags. SB 270 would extend these costs to cities and counties that so far have chosen not to impose expensive and counterproductive restrictions on shopping bags. Statewide, SB 270 and the many ordinances that are "grandfathered" in are likely to impose costs on consumers of over \$1 billion and possibly close to \$3 billion.

About the Authors

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Plastic Bags Are Good for You

What prohibitionists get wrong about one of modernity's greatest inventions Katherine Mangu-Ward | Sep. 1, 2015 3:00 pm

Here is a list of things that are thicker than a typical plastic grocery bag: A strand of hair. A coat of paint. A human cornea.

High-density polyethylene is a miracle of materials science. Despite weighing less than 5 grams, one bag can hold 17 pounds, well over 1,000 times its own weight. At about a penny apiece, the bags are cheap enough for stores to give away and sturdy enough to carry home two gallons of milk in the evening and still be up to the task of scooping Cujo's poop the next morning.

Yet almost as soon as grocers started offering their customers the choice of "paper or plastic?" these modern marvels became a whipping boy for environmentalists, politicians, and other well-intentioned, ill-informed busybodies. Plastic bags for retail purchases are banned or taxed in more than 200 municipalities and a dozen countries, from San Francisco to South Africa, Bellingham to Bangladesh. Each region serves up its own custom blend of alarmist rhetoric; coastal areas blame the wispy totes for everything from asphyxiated sea turtles to melting glaciers, while inland banners decry the bags' role in urban landscape pollution and thoughtless consumerism.

But a closer look at the facts and figures reveals shaky science and the uncritical repetition of improbable statistics tossed about to shore up the case for a mostly aesthetic, symbolic act of conservation.

How did one of the most efficient, resource-saving inventions of the 20th century become an environmentalist bugaboo?

Research

Before 1800, if you bought or traded for an object, you were pretty much on your own to get it home. People carried baskets for the little stuff and wheeled carts for the bigger items, often toting scraps of canvas or other durable fabric to wrap messier or more fragile

goods, such as meat or pastries. This was back when the germ theory of disease was yet to be broadly accepted, and there were not yet Laundromats on every street corner.

In the early 19th century, paper became cheap enough that merchants started using it to package their wares, tying off the bundles with string—a huge leap for both convenience and sanitation. The paper bag was invented in the 1850s, but it wasn't until the 1870s that a factory girl named Margaret Knight cobbled together a machine that cut, folded, and glued flat-bottomed paper receptacles. While the brown paper bag seems like the height of humdrum to modern eyes, Knight's machine was kind of a big deal: She won a bitter intellectual property fight to receive one of the first patents ever awarded to a woman, and was eventually decorated by Queen Victoria for her efforts. Over time, the paper bag got cheaper and stronger and sprouted handles, but it remained essentially unchanged, comfortably dominating the stuff-schlepping market for the next 100 years.

Meanwhile, German chemist Hans von Pechmann was messing around with methane and ether in a lab in 1898 when he happened to notice a waxy precipitate called polymethylene. Unfortunately, no one could puzzle out what to do with the goo, so another 30 years would pass before DuPont chemists stumbled upon a similar compound, polyethylene. This time, the British figured out they could use it to insulate radar cables, which is where the substance served its war duty. In 1953, Karl Ziegler of the Kaiser Wilhelm Institute (later re-christened the Max Planck Institute, for obvious reasons) and Erhard Holzkamp invented high-density polyethylene (HDPE) and soon after figured out how to use it to make pipes. Ziegler even snagged a Nobel Prize for the invention in 1963.

But Gustaf Thulin Sten is the real hero (or villain, depending on your point of view) of our tale. An employee of the Swedish company Celloplast, Sten was the person who had the inspiration to punch holes into the side of super-thin tubes of HDPE, thus creating the ubiquitous, filmy "T-shirt bags" we know and love (to ban) today.

In a 1993 book that claims to reveal the "hidden life of groceries and other secrets of the supermarket," journalist Vince Staten pinpoints the moment that the global takeover of the plastic bag became inevitable: a 1985 gathering of the New Materials and Profits in Grocery Sacks and Coextrusions Conference at a Holiday Inn in Somerset, New Jersey, at which a representative from Chem Systems announced that plastic bags were 11.5 percent cheaper than paper. Just like that, the world changed. Plastic bags were stocked in 10 percent of grocery stores in 1983, according to *Plastics World* magazine. By 1985 it was 75 percent. "Paper or plastic?" immediately became an everyday question, a punchline, and a source of angst.

Almost from the beginning, plastic bags were controversial. After several high-profile suffocation deaths of children, manufacturers worked together to create a public safety campaign, staving off regulation and reducing accidents. As grocers substituted plastic for paper to bolster their bottom lines, suburban shoppers, who preferred to line up flat-bottomed paper bags in the backs of their cars, complained, even as urban shoppers rejoiced at the ability to comfortably and reliably carry more than two bags at a time.

The booming environmental movement was initially flummoxed. Forest conservation was a big deal in the '80s, a point in favor of plastic. But fossil fuels were a no-no, so maybe paper was better? Both types of bags at the time were tough to recycle. The debate raged on, leaving eco-conscious shoppers unclear about the best course of action.

Reduce

In 2010, *Guinness World Records* named plastic bags the most ubiquitous consumer item in the world. But peak bag may already be upon us.

In 2007, San Francisco became the first U.S. city to prohibit plastic bags, citing concerns about water pollution and waste disposal. Chicago, Austin, Portland, and nearly all of Hawaii soon followed suit, chiming in with complaints about wastefulness, climate change, and more. Chinese officials banned plastic bags two months before hosting the 2008 Olympics, for the same reason they banned high-emissions vehicles and daytime pajamawearing-such unsightly displays didn't match up with the image the People's Republic wanted to present to the world. In China, they call the floating sacks "white pollution." South Africans refer to bags snagged in bushes as their "national flower."

In Washington, D.C., concern about used plastic bags finding their way down storm drains, through the Anacostia River, and into the Chesapeake Bay was the primary justification for the capital city's 5-cent bag tax in 2010, under the slogan "Skip the Bag, Save the River." In 2006, the California Coastal Commission claimed that plastic bags make up 3.8 percent of beach litter, and a few years later the California Ocean Protection Council upped the ante to 8 percent of all coastal trash. Last year the Dallas City Council pinned 5 percent of the area's refuse on bags.

But the definitive American litter study—yep, such a thing exists—reports much lower figures. The 2009 Keep America Beautiful Survey, run by Steven Stein of Environmental Resources Planning, shows that all plastic bags, of which plastic retail bags are only a subset, are just 0.6 percent of visible litter nationwide. And those California data? They come from the International Coastal Commission (ICC), which the California Coastal

Commission notes relies on information "collected by volunteers on one day each year, and is not a scientific assessment." (This insight, and many others in this story, is derived from a study produced last year by Julian Morris and Brian Seasholes for Reason Foundation, the nonprofit that publishes **reason**.) In D.C., a 2008 analysis prepared for the city's Department of the Environment by the Anacostia Watershed Society found that plastic bags were only the third-largest contributor to litter in the river, after food wrappers and bottles and cans.

Stein's study did find plastic bags in storm drains, but again, they made up only about 1 percent of the total litter.

Some plastic bags do find their way into the sea, of course. And one of the other concerns cited for the banning and regulation of plastic grocery bags is the safety of marine wildlife. The Blue Ocean Society for Marine Conservation is just one organization among many that claim that more than 1 million birds and 100,000 marine mammals and sea turtles die each year from eating or getting entangled in plastic.

Morris and Seasholes reconstructed an elaborate game of statistical telephone to source this figure back to a study funded by the Canadian government that tracked loss of marine animals in Newfoundland as a result of incidental catch and entanglement in fishing gear from 1981 to 1984. Importantly, this three-decade-old study had nothing to do with plastic bags at all.

Porpoises and sea turtles are undeniably charismatic megafauna—the pandas of the deep—and it's understandable that environmental groups would want to parade them around in a bid to drum up sympathy, almost certainly driven by the sincere belief that plastics put the beloved animals at grave risk. But in the end, there's little evidence that that's true. As David Santillo, a senior biologist with Greenpeace, told *The Times* of London, "It's very unlikely that many animals are killed by plastic bags. The evidence shows just the opposite. We are not going to solve the problem of waste by focusing on plastic bags. With larger mammals it's fishing gear that's the big problem. On a global basis plastic bags aren't an issue."

Reuse

But what about larger-scale impacts, such as climate change? Where do grocery bags stack up there? A 2011 study from the U.K.'s Environmental Agency attempted to quantify the emissions footprint both of plastic bags and of their substitutes. Holding the typical HDPE grocery bag up as the standard, researchers found that the common reusable non-woven

polypropylene bag—the ubiquitous crinkly plastic tote, typically made with oil—had to be used at least 11 times to hold its own against an HDPE grocery bag. Cotton bags had to be used an amazing 131 times to do the same.

In 2007, for a brief moment, the "It bag" wasn't a \$30,000 Hermes Birkin, it was a cotton tote designed by Anya Hindmarch that read: "I'm NOT A Plastic bag." Celebrities from Ivanka Trump to Keira Knightly were snapped toting the sold-out satchels for glossies like *Life&Style* and *Grazia*. While we can never know for sure, it seems wildly unlikely that Ivanka Trump has carried 131 loads of groceries in her life, much less in that particular bag.

What's more, those U.K. Environmental Agency figures assume the HDPE bag is not being reused. Nor do they account for the energy and materials needed to regularly wash the reusable bags in hot soapy water. Other alternatives did perform somewhat better in the global-warming matchup, including paper bags (which would have to be reused three times to match the single-use HDPE bag's footprint) and another type of reusable bag made of low-density polyethylene (four times).

About 65 percent of Americans report that they repurpose their grocery bags for garbage. By contrast, a survey by the marketing research firm Edelman Berland found that consumers reported forgetting their reusable bags on 40 percent of grocery trips and opted for plastic or paper instead. Prior to the movement to ban plastic bags, many American homes had a nook, cranny, or drawer that functioned as a kind of grocery-sack clown car. It seemed that whatever the size of the container, an infinite number of bags could be stuffed inside. My family called it the *bag o' bags*. As in: "Katherine! This mold experiment has gone on long enough! Go get me a bag from the bag o' bags so that I can throw it away," or "Karina, you better remember to get a bag from the bag o' bags for that wet swimsuit, unless you want the books in your backpack to get wet." If we wound up with an unmanageable surplus, we could just drop the bags at the recycling centers that used to sit in the parking lots of most suburban grocery stores.

Then there are the frequently unmeasured consumption consequences of the bans themselves. For example, in San Francisco, after the grocery/retail plastic bag ban went into effect in 2007, depriving customers of a source of free bags, sales of still legal, low-density polyethylene plastic bags shot up 400 percent.

Recycle

"It takes 12 million barrels of oil to produce the 100 billion plastic bags that are thrown away in the U.S. every year." Versions of this claim show up everywhere from *New York Times* editorials to Save the Bay pamphlets. But the origins of the figures are murky and the dramatic tone is misleading. Even if the number is accurate, it is almost a literal drop in the bucket: Americans consume a total of about 19 million barrels of oil *a day*. But as Morris and Seasholes point out, all that fretting about oil use "is surprising, not least because nearly all HDPE bags are produced from natural gas, not oil. Indeed, between 1981 and 2012, on average only 3.2% of polyethylene bags were made from oil. The reason is simple: it is far less expensive to produce ethylene, the feedstock for polyethylene, from natural gas (methane) than from oil." While the price of oil has recently declined, the assumption that plastic bags are made primarily from oil remains false.

In 2010, according to the U.S. Environmental Protection Agency, Americans threw away 690,000 tons of HDPE bags. Of those, approximately 30,000 tons were recycled. That means a total of 660,000 tons were discarded, mostly into landfills (approximately 82 percent of non-recovered municipal solid waste goes to landfill; 18 percent is incinerated). That same year, Americans also chucked almost exactly the same amount of "reusable" polypropylene bags (680,000 tons), of which zero were recovered. In other words, those polypropylene reusable bags actually constituted a slightly *higher* proportion of all bags going to landfills.

In April, NPR's *Planet Money* reported on the economics of plastic recycling, and noted that while recycled plastic from bags and sacks was once a profitable industry, times have changed. The prices of oil and gas have fallen, which means it is cheaper to just make new bags rather than undertake the laborious process of recycling the old ones. As Tom Outerbridge, who runs a Brooklyn recycling center called Sims, explained, "We can't afford to put a lot of time and money into trying to recycle it" if no one's buying the final product.

Reject

In March, *The Washington Post* reported on the surprising strength of the plastic bag industry in the face of regulatory onslaught.

In 2008, officials in the deep blue city of Seattle voted to impose a 20-cent fee on both plastic and paper single- use bags. "There's a competitive side to seeing who can come up with the most progressive legislation," city councilman and former local Sierra Club leader Mike O'Brien told *The New York Times*. But industry rallied before the implementation date, spending \$1.4 million on a citywide ballot measure to repeal the fee. The referendum

campaign was a success; Seattle voters rejected the surcharge, which would have been the most punitive in the nation, in 2009. Still, three years later, Seattle became the fourth city in Washington State to approve an outright plastic- bag ban, along with a 5-cent fee on paper bags.

In Dallas, a coalition of plastic bag manufacturers are challenging a 5-cent markup that the city has imposed on single-use bags. Hilex Poly (now Novolex), Superbag Operating, the Inteplast Group, and Advance Polybag argue that the fee is illegal under an obscure Dallas law that states: "A local government or other political subdivision may not adopt an ordinance, rule or regulation to: prohibit or restrict, for solid waste management purposes, the sale or use of a container or package in a manner not authorized by state law; [or] assess a fee or deposit on the sale or use of a container or package."

In Georgia, the state Senate got a little meta, passing a ban on bag bans last session, which would have pre-emptively prevented restrictions. While the bill failed in the House, it may prove to be a model for other state pre-emptions around the country.

Ground Zero of the plastic wars, unsurprisingly, is California. Last year, Democratic Gov. Jerry Brown signed a statewide ban against plastic grocery bags that was scheduled to take effect this July 1. But the implementation has been stalled, thanks to 800,000 signatories to a petition circulated by the American Progressive Bag Alliance, a new group funded by plastics manufacturers. Voters will now have to ratify the ban on their 2016 ballots for it to go into effect. "This is a cynical ploy by out-of-state interests desperate to delay a ban already adopted in more than 100 communities across California," a spokesperson for Brown told the Associated Press.

Of course, if there's some banning going on, you can always rely on Congress to muscle in on the action. Rep. James P. Moran (D–Va.) has repeatedly introduced a bill to create a national 5-cent tax on all disposable plastic or paper bags supplied by stores to customers. The bill typically dies quietly in committee, but perhaps Moran was hoping that, as Gandhi famously didn't say: "First they ignore you, then they laugh at you, then they attack you, then you win."

Regurgitate

As I write this, a load of reusable grocery bags is tumbling around in my dryer. In the course of researching this article, I got so thoroughly grossed out by the malevolent horror lurking in my pantry that I had to stop writing and start washing.

I may love plastic bags, but I'm not immune to cultural and economic pressure, so when I remember to, I tote my reusable bags to the store like a good little yuppie. But this ostensibly modern act brings me back to conditions a little too reminiscent of the subhygienic reality faced by my great-great-grandmother, with her blood-and-crumb-covered reusable canvas wrapper.

If you're like most people, here's what you have probably done at least once: Put a leaky package of chicken in your cloth or plastic tote. Then go home, empty the bag, crumple it up, and toss it in the trunk of your car to fester. A week later, you go shopping again and throw some veggies you're planning to eat raw into the same bag. Cue diarrhea.

A 2011 survey published in the journal *Food Protection Trends* found coliform bacteria in fully half of the reusable shopping bags tested in a random survey of shoppers in Arizona and California. The same 2014 Edelman Berland study that found consumers frequently forgot their bags also unearthed the fact that only 18 percent of shoppers reported cleaning their bags "once a week or more." An article in the *Journal of Infectious Diseases* traced a 2010 outbreak of norovirus to nine members of an Oregon soccer team who had touched or eaten food stored in a contaminated reusable bag.

Your cute reusable tote decorated with whimsical watercolors of eggplants may actually be causing those stomach cramps.

Reconsider

Set your mind back to 1999, before our current wave of bag crackdowns, but well after the "plastic" answer to "paper or plastic?" began giving environmentalists the tremors. In that year's Oscar-winning *American Beauty*, an ambitious young filmmaker within the dull confines of suburbia captures an iconic image of a plastic sack—that product of banal late-capitalist excess—twirling artistically in the wind. "And this bag was just dancing with me," he says dreamily. "Like a little kid begging me to play with it. For 15 minutes. That's the day I realized that there was this entire life behind things, and this incredibly benevolent force that wanted me to know there was no reason to be afraid, ever."

Though it was meant as irony, there was an essential (if accidental) truth behind the speech. The technology behind plastic grocery bags is so useful it won a Nobel Prize. Employing an unimaginably small amount of base material, manufacturers can create tools of surprising strength and durability. Far from being the environmental threat activists make them out to be, plastic bags are not particularly to blame for clogged sewers,

choked rivers, asphyxiated sea animals, or global warming. Instead, they are likely our best bet for carrying all of our junk in a responsible manner.

Don't believe the haters. Plastic bags are good for you.